



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/720,942	06/08/2001	Rodney Thomas Fox	08291-673001	8418
26211	7590	12/01/2004	EXAMINER	
FISH & RICHARDSON P.C. CITIGROUP CENTER 52ND FLOOR 153 EAST 53RD STREET NEW YORK, NY 10022-4611			JIANG, SHAOJIA A	
			ART UNIT	PAPER NUMBER
			1617	

DATE MAILED: 12/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

MAILED

DEC 01 2004

GROUP 1600

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/720,942
Filing Date: June 08, 2001
Appellant(s): FOX ET AL.

Frederick H. Rabin
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed August 26, 2004.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is substantially correct. However, the examiner disagrees Appellant's statement "The charged particles target microorganisms that are attached to dust particles [page 6, line 4] and also microorganisms present in dust-free spaces [Example 2]." (emphasis added, see the first paragraph, line 3-4 at page 3 of Appellants' *Summary of Invention* in Appellants' brief), as further discussed below in the rejection under 35 U.S.C. 112, first paragraph.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

(7) *Grouping of Claims*

Claims 1-16 stand or fall together.

(8) *Claims Appealed*

Art Unit: 1617

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

WO 97/28883	Fox et al.	08-1997
5,403,587	McCue et al.	04-1995

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-16 as amended, submitted August 25, 2003, are rejected under 35 U.S.C. 112, first paragraph, as containing new matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This rejection is set forth in the prior Office Action mailed November 19, 2003, and reiterated as below.

Applicant's amendment with respect to amended claim 1 has been fully considered but is deemed to insert new matter into the claims since the specification as originally filed does not provide support for "the airborne microorganism and viruses that are not attached to dust particles". Any negative limitation or exclusionary proviso must

Art Unit: 1617

have basis in the original disclosure. See *Ex parte Grasselli*, 231 USPQ 393 (Bd. App. 1983), *aff'd mem.*, 738 F.2d 453 (Fed. Cir. 1984). The mere absence of a positive recitation is not basis for an exclusion. Any claim containing a negative limitation which does not have basis in the original disclosure should be rejected under 35 U.S.C. 112, first paragraph as failing to comply with the written description requirement. See MPEP § 2163 - § 2163.07(b) for a discussion of the written description requirement of 35 U.S.C. 112, first paragraph.

In the instant case, the original specification fails to disclose the claimed method for killing the airborne microorganism and viruses that are not attached to dust particles. Applicant assertion with respect to the Examples 1 and 2 in the specification using HEPA filter and thus providing the support for "the airborne microorganism and viruses that are not attached to dust particles" has been fully considered but not persuasive. Since even though the HEPA filter may effectively remove merely "lung damaging dust" or dust particles greater than 0.3 microns, employing the HEPA filter is not seen to provide "the airborne microorganism and viruses that are not attached to dust particles" in an absolutely dust free atmosphere. Further, it is noted that Example 2 in the specification fails to disclose "the airborne microorganism and viruses that are not attached to dust particles", since "Bacterial were sprayed from a collision nebulizer for 60 seconds and mixed with the room air for a further 60 seconds by a fan" (see page 17 lines 27-29, emphasis added).

Consequently, there is nothing within the instant specification which would lead the artisan in the field to believe that Applicant was in possession of the invention as it is

Art Unit: 1617

now claimed. See *Vas-Cath Inc. v. Mahurkar*, 19 USPQ 2d 1111, CAFC 1991, see also *In re Winkhaus*, 188 USPQ 129, CCPA 1975.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fox et al. (WO 97/28883, of record) in view of McCue et al. (5,403,587, of record). This rejection is set forth in the prior Office Action mailed November 19, 2003, and reiterated as below.

The added language, killing "the airborne microorganism and viruses that are not attached to dust particles" in amended claims 1-15 and the new claim 16 does not render the claimed method nonobvious over the prior art as. Applicant's remarks filed on August 25, 2003 in Paper No. 19 with respect to this rejection of claims 1-15 made under 35 U.S.C. 103(a) have been fully considered but are not deemed persuasive as to the nonobviousness of the claimed invention over the prior art as discussed below.

Fox et al. discloses that the same (aerosol) spray device having same spraying functions as the instant claimed device is useful in a method of precipitating airborne particles. Fox et al. further discloses that the liquid composition which is sprayed from

Art Unit: 1617

the aerosol spray device is a mixture of water and hydrocarbon, or an emulsion and an anti-bacterial agent. See abstract, page 2 lines 1-20, and claims 1-7. As discussed in the previous Office Action, Fox et al. discloses that the same aerosol spray device having same spraying functions as the instant claimed device is useful in a method of precipitating airborne particles broadly. In particular, the spray device of Fox therein is known to produce the same unipolar charge which provides the droplets with a charge to the same mass ratio of at least $\pm 1 \times 10^{-4}$ C/Kg (see the abstract). Moreover, one of ordinary skill in the art would recognize that these airborne particles include airborne microorganism and/or viruses encompassing attached or not attached to dust particles, e.g., including micrococcus lutens bacteria.

Fox et al. does not expressly disclose the employment of this aerosol spray device comprising a disinfecting or sanitizing compositions in a method of disinfecting or sanitizing a space occupied by airborne microorganisms and/or viruses that are not attached to dust particles. The prior art does also not expressly disclose the employment of the particular disinfecting or sanitizing composition comprising an essential oil as an anti-bacterial or anti-viral agent such as thyme, lemongrass, roses, citronella, eucalyptus, and sandalwood, and quaternary ammonium.

McCue et al. discloses the disinfectant and sanitizing compositions having anti-microbial activity comprising known ingredients such as essential oils, thyme, lemongrass, roses, citronella, eucalyptus, and sandalwood, and organic solvent and a surfactant in amounts within the instant claim.

Art Unit: 1617

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to employ the aerosol spray device herein comprising a disinfecting or sanitizing compositions in a method of disinfecting or sanitizing a space occupied by airborne microorganisms and/or viruses that are not attached to dust particles, and to employ an essential oil as an anti-bacterial or anti-viral agent such as thyme, lemongrass, roses, citronella, eucalyptus, and sandalwood, and quaternary ammonium in the disinfecting or sanitizing composition, and to optimize the effective amounts of each ingredients in the composition.

One having ordinary skill in the art at the time the invention was made would have been motivated to employ the aerosol spray device herein comprising a disinfecting or sanitizing compositions in a method of disinfecting or sanitizing a space occupied by airborne microorganisms and/or viruses that are not attached to dust particles because the same aerosol spray device having same spraying functions as the instant claimed device is known to be useful in a method of precipitating airborne particles. One of ordinary skill in the art would recognize that these airborne particles include airborne microorganism and/or viruses that are not attached to dust particles.

Moreover, the liquid composition of Fox et al. which is sprayed from the aerosol spray device is known to comprise a mixture of water and hydrocarbon, or an emulsion and an anti-bacterial agent within the instant claim. Thus, Fox et al. therein teaches broadly the usefulness of this aerosol spray device. Therefore, one of ordinary skill in the art would have reasonably expected that this aerosol spray device containing the liquid composition of Fox et al. would be useful in a method of disinfecting or sanitizing

Art Unit: 1617

a space occupied by airborne microorganisms and/or viruses that are not attached to dust particles. Additionally, one of ordinary skill in the art would have been motivated to employ quaternary ammonium and the essential oil herein in the disinfecting or sanitizing composition since quaternary ammonium is well known a disinfectant and sanitizer since it is known that quaternary ammonium has antimicrobial activity. It is also known that the essential oil such as thyme, lemongrass, roses, citronella, eucalyptus, and sandalwood is useful in the disinfecting or sanitizing composition as an anti-bacterial or anti-viral agent according to McCue et al. Further, one of ordinary skill in the art would have been motivated to optimize the effective amounts of active ingredients in the composition herein because such effective amounts of active ingredients in the composition herein have been taught by McCue et al.

(11) Response to Argument

Claim Rejections - 35 USC § 112 Maintained

Claims 1-16 as amended, submitted August 25, 2003, are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention, for reasons of record stated in the previous Office Action dated November 19, 2003.

It is the examiner's position that Applicant's amendment filed August 25, 2003, with respect to amended claim 1 has been fully considered but is deemed to insert new

Art Unit: 1617

matter into the claims since the specification as originally filed does not provide support for “the airborne microorganism and viruses that are not attached to dust particles”. Any negative limitation or exclusionary proviso must have basis in the original disclosure.

See Ex parte Grasselli, 231 USPQ 393 (Bd. App. 1983), aff’d mem., 738 F.2d 453 (Fed. Cir. 1984). The mere absence of a positive recitation is not basis for an exclusion. Any claim containing a negative limitation which does not have basis in the original disclosure should be rejected under 35 U.S.C. 112, first paragraph as failing to comply with the written description requirement. See MPEP § 2163 - § 2163.07(b) for a discussion of the written description requirement of 35 U.S.C. 112, first paragraph.

In the instant case, the original specification fails to disclose the claimed method for the limitation, killing the airborne microorganism and viruses that are not attached to dust particles. Appellants’ assertion that “a chamber provided with HEPA filtered air. HEPA filtered air effectively removes all particles down to 0.3 microns in size” in the appeal brief (see the brief, page 5, the last paragraph) with respect to the general language and the Examples 1 and 2 in the specification, has been fully considered but not persuasive as to providing the support for the particular limitation “the airborne microorganism and viruses that are not attached to dust particles” in the instant claims.

Since even though the HEPA filter may effectively remove merely “lung damaging dust” or dust particles greater than 0.3 microns, employing the HEPA filter alone is not seen to provide “the airborne microorganism and viruses that are not attached to dust particles” in an absolutely **dust free** atmosphere, let alone that it is unlikely to one of skill in the art that the efficiency of HEPA filter could reach 100%, as

Art Unit: 1617

Appellants admit by stating "This is literally true..." (see Appellants' brief, the 2nd paragraph of page 6).

Moreover, Appellants clearly acknowledge that the standard of HEPA filter is efficient up to 99.97% at 0.3 micrometers (provided by Appellants in Exhibit A, "SAS" Air Purifiers). Hence, at best HEPA filter's efficiency can only achieve 99.97%.

Further, it is noted that Example 2 in the specification fails to disclose "the airborne microorganism and viruses that are not attached to dust particles", since "Bacterial were sprayed from a collision nebulizer for 60 seconds and mixed with the room air for a further 60 seconds by a fan" (see page 17 lines 27-29, emphasis added).

Consequently, there is nothing within the instant specification which would lead the artisan in the field to believe that Applicant was in possession of the invention as it is now claimed. See *Vas-Cath Inc. v. Mahurkar*, 19 USPQ 2d 1111, CAFC 1991, see also *In re Winkhaus*, 188 USPQ 129, CCPA 1975.

Claim Rejections - 35 USC § 103 Maintained

Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fox et al. (WO 97/28883, of record) in view of McCue et al. (5,403,587, of record) for reasons of record stated in the Office Action dated November 19, 2003.

It is the examiner's position that the present invention is clearly obvious in view of the prior art of record, as discussed below.

Art Unit: 1617

Fox et al. discloses that the same (aerosol) spray device having same spraying functions as the instant claimed device is useful in a method of precipitating airborne particles. Fox et al. further discloses that the liquid composition which is sprayed from the aerosol spray device is a mixture of water and hydrocarbon, or an emulsion and an anti-bacterial agent. See abstract, page 2 lines 1-20, and claims 1-7. As discussed in the previous Office Action, Fox et al. discloses that the same aerosol spray device having same spraying functions as the instant claimed device is useful in a method of precipitating airborne particles broadly. In particular, the spray device of Fox therein is known to produce the same unipolar charge which provides the droplets with a charge to the same mass ratio of at least $\pm 1 \times 10^{-4}$ C/Kg (see the abstract).

Moreover, one of ordinary skill in the art would consider that these airborne particles to be precipitated by the method of precipitating airborne particles using the spray device, disclosed by Fox et al., would include airborne microorganism and/or viruses, encompassing attached or not attached to dust particles, e.g., including micrococcus lutens bacteria,

Fox et al. does not expressly disclose the limitation, killing "the airborne microorganism and viruses that are not attached to dust particles" by employing this aerosol spray device of Fox et al. comprising a disinfecting or sanitizing compositions, in a method of disinfecting or sanitizing a space occupied by airborne microorganisms and/or viruses that are not attached to dust particles.

The prior art does also not expressly disclose the employment of the particular disinfecting or sanitizing composition comprising an essential oil as an anti-bacterial or

Art Unit: 1617

anti-viral agent such as thyme, lemongrass, roses, citronella, eucalyptus, and sandalwood, and quaternary ammonium.

McCue et al. discloses the disinfectant and sanitizing compositions having anti-microbial activity comprising known ingredients such as essential oils, thyme, lemongrass, roses, citronella, eucalyptus, and sandalwood (see col.1 line 44-64; col.3 line 53-65), in an oil phase and aqueous phase composition (see col.2 line 1-34), an organic solvent in 2.75-30% by weight (see col.3 line 24) and a surfactant in 0.75-10% by weight (see col.2 line 1-34). See also claims 1-9 therein.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to employ the aerosol spray device herein comprising a disinfecting or sanitizing compositions in a method of disinfecting or sanitizing a space occupied by airborne microorganisms and/or viruses that are not attached to dust particles, and to employ an essential oil as an anti-bacterial or anti-viral agent such as thyme, lemongrass, roses, citronella, eucalyptus, and sandalwood, and quaternary ammonium in the disinfecting or sanitizing composition, and to optimize the effective amounts of each ingredients in the composition.

One having ordinary skill in the art at the time the invention was made would have been motivated to employ the aerosol spray device herein comprising a disinfecting or sanitizing compositions in a method of disinfecting or sanitizing a space occupied by airborne microorganisms and/or viruses that are not attached to dust particles, because the same aerosol spray device having same spraying functions as the instant claimed device is known to be useful in a method of precipitating airborne

Art Unit: 1617

particles. One of ordinary skill in the art would recognize that these airborne particles include airborne microorganism and/or viruses that are not attached to dust particles.

Moreover, the liquid composition of Fox et al. which is sprayed from the aerosol spray device is known to comprise a mixture of water and hydrocarbon, or an emulsion and an anti-bacterial agent within the instant claim. Thus, Fox et al. therein teaches broadly the usefulness of this aerosol spray device. Therefore, one of ordinary skill in the art would have reasonably expected that this aerosol spray device containing the liquid composition of Fox et al. would be useful in a method of disinfecting or sanitizing a space occupied by airborne microorganisms and/or viruses including those not attached to dust particles.

Additionally, one of ordinary skill in the art would have been motivated to employ the essential oil herein or quaternary ammonium in the disinfecting or sanitizing composition since it is known that the essential oil such as thyme, lemongrass, roses, citronella, eucalyptus, and sandalwood is useful in the disinfecting or sanitizing composition as an anti-bacterial or anti-viral agent according to McCue et al. and quaternary ammonium is a well known disinfectant and sanitizer since it is known that quaternary ammonium has antimicrobial activity.

Further, one of ordinary skill in the art would have been motivated to optimize the effective amounts of active ingredients in the composition herein, since the claimed ranges, 2-10% by weight of C9-C12 hydrocarbon considered as an organic solvent, and 0.1-1.0 % by weight of a surfactant overlap or lie inside ranges disclosed by McCue et al., 2.75-30% by weight, and 0.75-10% by weight, respectively. Thus, a *prima facie* case

Art Unit: 1617

of obviousness exists. See *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). See also MPEP 2144.05.

Appellants primarily argue that Fox et al. does not expressly disclose the employment of an aerosol spray device comprising a disinfecting or sanitizing compositions in a method for disinfecting or sanitizing a space contaminated by airborne microorganisms and/or viruses that are that are not attached to dust particles, by asserting "The Fox reference involves precipitation of airborne dust particles" and "Precipitation is not part of Applicants' claimed methods" (see Appellants' brief, page 7).

Appellants' arguments herein are not found persuasive, as discussed in the previous Office Action, Fox et al. discloses that the same aerosol spray device having same spraying functions as the instant claimed device is useful in a method of precipitating airborne particles broadly. In particular, the spray device of Fox therein is known to produce the **same** unipolar charge which provides the droplets with a charge to the same mass ratio of at least $\pm 1 \times 10^{-4}$ C/Kg (see the abstract). Moreover, one of ordinary skill in the art would recognize that these airborne particles include airborne microorganism and/or viruses. Thus, the mechanism of action involved in Fox's method is deemed same as claimed herein, by spraying the composition to the air using the known Fox's device.

Therefore, one of ordinary skill in the art would have reasonably expected that this aerosol spray device containing the liquid composition of Fox et al. would have same usefulness in a method of disinfecting or sanitizing a space contaminated by

Art Unit: 1617

airborne microorganisms and/or viruses that are that are not attached to dust particles by killing these airborne microorganisms and/or viruses whether attached to dust particles or not and whether precipitated or not, because the critical method steps, employing the same function device and spraying into a space, have been taught by Fox.

Moreover, even though Appellants argue that “The Fox reference involves precipitation of airborne dust particles” and “Precipitation is not part of Applicants’ claimed methods”, the mechanism of action of a treatment does not have a bearing on the patentability of the invention if the method steps are already known even though applicant has proposed or claimed the mechanism recited in claim 1.

Appellants’ recitation of a new mechanism of action for the prior art method will not, by itself, distinguish the instant claims over the prior art teaching the same or nearly the same method steps. Mere recognition of latent properties in the prior art does not render novel or nonobvious an otherwise known invention. See *In re Wiseman*, 201 USPQ 658 (CCPA 1979). Granting a patent on the discovery of an unknown but inherent function would remove from the public that which is in the public domain by virtue of its inclusion in, or obviousness from, the prior art. *In re Baxter Travenol Labs*, 21 USPQ2d 1281 (Fed. Cir. 1991). See M.P.E.P. 2145.

Further, as discussed above in the rejection under 35 U.S.C. 112, first paragraph, it is noted that Example 2 in the specification fails to disclose “the airborne microorganism and viruses that are not attached to dust particles” since the bacteria used in the test were sprayed from a collision nebulizer for 60 seconds and mixed with

Art Unit: 1617

the room air for a further 60 seconds by a fan". Thus, more importantly, Appellants' own testing in Example 2 is not deemed to exclude the precipitating mechanism of action involved in Fox's method. Note Appellants' own statements that "The charged particles target microorganisms that are attached to dust particles" (see Appellants' brief, page 3) and that "It must be borne in mind that we are not seeking to create a "clean room" of the type required for the manufacture of computer chips. Rather, we are dealing with ordinary indoor, industrial, institutional or domestic living spaces" (see Appellants' brief, page 6) are seen to support the examiner's position that Appellants' claimed method is deemed to include the precipitating mechanism of action disclosed in Fox's method.

In response to Appellants' argument that HEPA filters are not used in the test reported in the Fox reference, the limitation on HEPA filters is not stated in the instant claims. Therefore, it is irrelevant whether the reference includes those features or not.

Again, Appellants also assert that the disinfectant and sanitizing compositions of McCue et al. having anti-microbial activity comprising essential oils such as thyme, lemongrass, roses, citronella, eucalyptus, and sandalwood, and organic solvent and a surfactant in amounts within the instant claim are used for hard surface. However, McCue et al. has been cited by the examiner primarily for its teaching that the disinfectant and sanitizing compositions of McCue et al. comprising active ingredients within the instant claims are known to have anti-microbial activity.

Moreover, the liquid composition of Fox et al. which is sprayed from the aerosol spray device is known to comprise a mixture of water and hydrocarbon, or an emulsion and an anti-bacterial agent within the instant claim. Thus, Fox et al. therein teaches

Art Unit: 1617

broadly the usefulness of this aerosol spray device. Additionally, one of ordinary skill in the art would have been motivated to employ quaternary ammonium and the essential oil herein in the disinfecting or sanitizing composition since quaternary ammonium is well known a disinfectant and sanitizer since it is known that quaternary ammonium has antimicrobial activity.

Thus the claimed invention as a whole is clearly prima facie obvious over the combined teachings of the prior art.

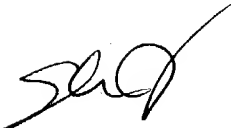
Again, Appellants' data shown in the Examples 1-2 of the specification at pages 15-19 herein have been fully considered with respect to the nonobviousness and/or unexpected results of the claimed invention over the prior art, but are not deemed persuasive. The results herein, i.e., bacteria were sprayed from a collision nebulizer for 60 seconds and mixed with the room air for a further 60 seconds by a fan, anti-bacterial performance was observed using the charged spray device (see Table 1 at page 19), are clearly expected and not unexpected based on the cited prior art, Fox et al., as discussed above. Expected beneficial results are evidence of obviousness. See MPEP § 716.02(c). Therefore, the evidence presented in Examples herein is not seen to support the nonobviousness of the instant claimed invention over the prior art.

For the above stated reasons, said claims are properly rejected under 35 U.S.C. 103(a). Therefore, said rejection is adhered to.

For the above reasons, it is believed that the rejections should be sustained.


Art Unit: 1617

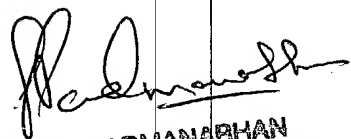
Respectfully submitted,


S. A. Jiang, Ph.D.
Primary Examiner
November 26, 2004


SHAOJIA ANNA JIANG
PATENT EXAMINER

Conferees


GARY KINTZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600


SREENI PADMANABHAN
SUPERVISORY PATENT EXAMINER